PART VI Nutrition

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1. Regarding nutritional requirement during childhood, all the following are true **EXCEPT**

Just The First 3yrs.

A. nutrition and growth during 3-6 years of life predict adult stature and some health outcomes
B. major risk period for growth stunting is between 4 and 24 months of age
C. estimated average requirement (EAR) is the average daily nutrient intake level estimated to meet the requirements for 50% of the population
D. recommended dietary allowance (RDA) is an estimate of the daily average nutrient intake to meet the nutritional needs of >97% of the individuals in a population
E. the 3 components of energy expenditure are the basal metabolic rate, thermal effect of food, and energy for physical activity

2. The adequate intake (AI) for the total digestible carbohydrates in a nine-month-old boy is

A. 60 gm/day
B. 95 gm/day
C. 120 gm/day
D. 145 gm/day
E. 170 gm/day

The AI is 60 gm/day for 0-6 months and 95 gm/day for 7-12 months.

3. The adequate intake (AI) for the total fat in a nine-month-old boy is

A. 10 gm/day
B. 20 gm/day
C. 30 gm/day
D. 40 gm/day
E. 50 gm/day

The AI is 31 gm/day for 0-6 months and 30 gm/day for 7-12 months.

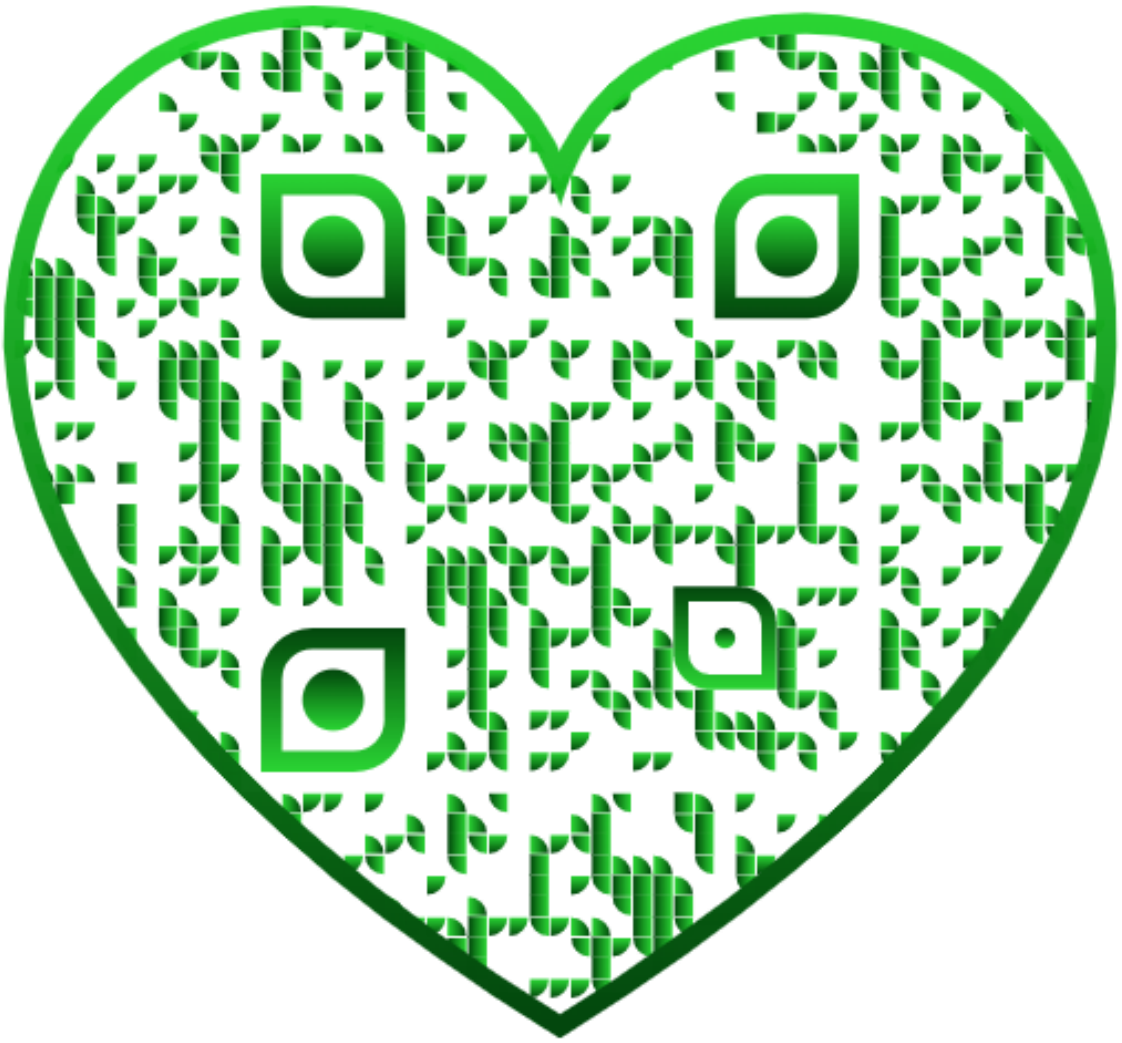
4. The adequate intake (AI) for the total protein in a nine-month-old boy is

A. 9 gm/day
B. 11 gm/day
C. 13 gm/day
D. 15 gm/day
E. 17 gm/day

The AI is 9 gm/day for 0-6 months and 11 gm/day for 7-12 months

5. All the following amino acids are indispensable in human diet **EXCEPT**

Alanine, aspartic acid, asparagine, glutamic acid, and serine are dispensable amino acids.



A. leucine
B. methionine
C. threonine
D. valine
E. alanine

6. Essential fatty acids deficiency is associated with all the following features **EXCEPT**
A. desquamating skin rashes
B. alopecia
C. thrombocytosis
D. impaired immunity
E. growth deficits

7. All the following statements concerning iron requirement in children are true **EXCEPT**
A. breast milk provides optimal intake of iron for the first 4 months
B. iron present in animal protein is more bioavailable than that found in vegetables
C. iron deficiency is the most common micronutrient deficiency
D. cow's milk is a good source of bioavailable iron
E. iron supplements can interfere with zinc absorption

8. Zinc deficiency is associated with increased risk for all the following **EXCEPT**
A. stunting
B. impaired immune function
C. increased risk for respiratory diseases
D. increased risk for diarrheal diseases
E. increased risk for skin infections

9. The American academy of pediatrics change the vitamin D intake recommendation in 2010 to
A. 200 IU/day
B. 400 IU/day
C. 600 IU/day
D. 800 IU/day
E. 1000 IU/day

10. Breast feeding has been suggested to have a possible protective effect against all the following **EXCEPT**
A. otitis media
B. urinary tract infections
C. septicemia
D. childhood cancer

Diarrhea, otitis media, urinary tract infections, necrotizing enterocolitis, septicemia, infant botulism, celiac disease, childhood cancer, allergy, hospitalizations, and infant mortality all are conditions in which breastfeeding has been suggested to have a possible protective effect.

E. skin infections

Contraindications of breast-feeding: Most of them are ***temporary.***

In mother	In the baby
1) **Severe systemic diseases**, as: 1. Acute heart failure, 2. Thyrotoxicosis, 3. Neoplasia & receiving cytotoxic therapy. 2) HIV 3) Cytomegalovirus (CMV) 4) Human T-cell lymphotropic virus type 1 (HTLV-1) 5) Rubella virus 6) Herpes simplex virus 7) Active Tuberculous 8) Acute Typhoid 9) Septicemia 10) Malaria 11) Local bilateral breast abscesses 12) Insanity مرض نفسي 13) Uncontrolled epilepsy 14) Severely inverted nipples not responding to local treatment.	1) **Inborn metabolic disease**, as: 1. Galactosemia (galactose intolerance) 2. Phenylketonuria 3. Primary disaccharidase deficiency 2) **Severe physical abnormalities**, as: 1. Bilateral cleft palate 2. Cleft lip. 3) **Weak and premature infants**. 4) **Cerebral anoxia**. 5) **Severe dyspnea**, as: 1. Respiratory distress syndrome (RDS) 2. Heart failure (HF).

11. An absolute contraindication to breastfeeding is
    A. hepatitis c infection of the mother
    B. alcohol intake
    C. herpes simplex lesion of the lips
    D. active pulmonary tuberculosis
    E. maternal high grade fever

12. Regarding breast engorgement; All the following are true **EXCEPT**
    A. usually happens in the first stage of lactogenesis → 2nd stage.
    B. poor breast feeding technique can cause engorgement
    C. breastfeeding immediately at signs of infant hunger will eventually prevent this
    D. to reduce engorgement, breasts should be softened prior to infant feeding with a combination of hot compresses and expression of milk
    E. between feedings, cold compresses applied, and oral nonsteroidal anti-inflammatory medications administered

13. All the following organisms can cause mastitis **EXCEPT**
    A. Staphylococcus aureus → Most common organism.
    B. Escherichia coli
    C. Haemophilus influenza
    D. Klebsiella pneumoniae
    E. group B streptococcus group A.

14. The **MOST** common cause of using infant formula is
    A. parental preference
    B. inborn error of metabolism
    C. maternal tuberculosis
    D. masititis
    E. inadequate weight gain

15. Concerns to be considered among vegetarians are all the following **EXCEPT**
    A. higher bioavailability of iron
    B. lower B_{12} levels ✓
    C. risk of having lower level of fatty acids ✓
    D. lower levels of calcium and vitamin D_3 ✓
    E. lower bioavailability of zinc ✓

16. All the following are dimensions of food security **EXCEPT**
    A. access

B. utilization
C. preparation
D. stability
E. availability

17. The **TRUE** hemoglobin cutoff to define anemia is
A. 120 g/L for children 6-59 mo
B. 115 g/L for children 5-11 yr
C. 110 g/L for children 12-14 yr
D. 110 g/L for non-pregnant women
E. 120 g/L for men

Hemoglobin cutoffs to define anemia are 110 g/L for children 6-59 mo, 115 g/L for children 5-11 yr, and 120 g/L for children 12-14 yr. Cutoffs to define anemia for non- pregnant women are 120 g/L, 110 g/L for pregnant women, and 130 g/L for men.

18. The **MOST** commonly used index for nutritional status is
A. height-for-age
B. weight-for-height
C. body mass index
D. mid-upper arm circumference
E. weight-for-age

19. For children <5 yr, the highest global prevalence of micronutrient and trace elements deficiencies is that of
A. vitamin A deficiency 33%
B. zinc deficiency → 17%
C. iron deficiency → 18%
D. iodine deficiency → 29%
E. copper deficiency

20. The **MOST** profound consequence of undernutrition is
A. premature death
B. repeated infections
C. stunting
D. cell damage
E. developmental delay

21. "Reductive adaptation" process of evolution to a state of full malnutrition, all the following events will be ensued **EXCEPT**
A. the liver makes glucose less readily
B. less heat production
C. gut produces less gastric acid and gut enzymes
D. evident responses to infection
E. reduced red cell mass

Immune function is impaired, especially cell-mediated immunity. The usual responses to infection may be absent, even in severe illness, increasing the risk of undiagnosed infection

22. The outward sign of cell damage in malnutrition is

A. repeated infections
B. wasting
C. edema
D. hepatomegaly
E. facial appearance

Edema and hair/skin changes are outward signs of cell damage.

23. The recommended transition time from stabilization to rehabilitation phase in the treatment of malnutrition is

A. 1 day
B. 3 days
C. 5 days
D. 7 days
E. 10 days

. A controlled transition over 3 days is recommended to prevent the "refeeding syndrome.

24. The WHO recommendation for antibiotic cover in the stabilization phase of treating malnourished boy free of initial complications is to use

A. oral amoxicillin
B. parenteral penicillin
C. oral second generation cephalosporin
D. parenteral gentamicin
E. parenteral third generation cephalosporin

If no complications; oral Amoxicillin 25 mg/kg twice daily for 5 days. If there are any complications (shock, hypoglycemia, hypothermia, skin lesions, urinary tract or respiratory tract infections, or lethargy); Gentamicin 7.5 mg/kg IV or IM once daily for 7 days and Ampicillin 50 mg/kg IV or IM every 6 hours for 2 days then oral Amoxicillin 25- 40 mg/kg every 8 hours for 5 days.

25. During treatment of malnutrition, the signal of entry to the rehabilitation phase is

A. reduced edema ↳ return of apetite.
B. resolution of infection
C. disappearance of signs of micronutrient deficiency
D. constant blood sugar level
E. constant body temperature

26. In consideration of preventing infections in stabilization phase of malnutrition in unimmunized 10-month-old boy.
Of the following, the vaccine that is recommended to be given is

A. oral polio vaccine
B. acellular pertussis vaccine
C. measles vaccine
D. pneumococcal vaccine
E. H. influenza vaccine

27. The following vitamins and trace elements are recommended to be given during the stabilization phase of malnutrition **EXCEPT**

A. iron → Should be avoided in "stabilization" phase

B. vitamin A
C. folic acid
D. zinc
E. multivitamins

28. Emergency treatment in severe malnutrition includes all the following **EXCEPT**
A. shock
B. hypoglycemia
C. dehydration
D. severe anemia
E. infections

29. The aim of the rehabilitation phase in the treatment of malnutrition is to
A. repair cellular function
B. correct fluid and electrolyte imbalance
C. restore homeostasis
D. catch-up growth to restore wasted tissue.
E. prevent death from infection

30. The hallmark of refeeding syndrome is the development of severe
A. hypophosphatemia
B. hypokalemia
C. hypomagnesemia
D. hypernatremia
E. hyperglycemia

The hallmark of refeeding syndrome is the development of severe hypophosphatemia after the cellular uptake of phosphate duringthe 1st wk of starting to refeed. Serum phosphate levels of ≤0.5 mmol/L can produce weakness, rhabdomyolysis, neutrophil dysfunction, cardio-respiratory failure, arrhythmias, seizures, altered level of consciousness, or sudden death.

31. Encephalopathy in refeeding syndrome is mainly a result of
A. hypophosphatemia
B. hypokalemia
C. hypomagnesemia
D. thiamine deficiency → encephalopathy, Lactic acidosis death.
E. hyperglycemia

32. Thrombocytopenia in refeeding syndrome is mainly a result of
A. hypophosphatemia causes leucocyte dysfunction, hemolysis, and thrombocytopenia.
B. hypokalemia
C. hypomagnesemia
D. thiamine deficiency
E. hyperglycemia

33. Across all racial groups, the factor that confers protection against childhood obesity is

A. gestational weight gain
B. high birth weight
C. maternal smoking
D. breast feeding
E. maternal education

Prenatal factors including high preconceptual weight, gestational weight gain, high birth weight, and maternal smoking are associated with increased risk for later obesity. Paradoxically, intrauterine growth restriction with early infant catch-up growth is associated with the development of central adiposity and adult-onset cardiovascular risk. Breastfeeding is only modestly protective for obesity.

34. Adeposity rebound, the period when the body fat is typically at the lowest level, is best represented at the age of
A. 1 year
B. 3 years
C. 6 years
D. 9 years
E. 12 years

35. The gastrointestinal hormone/response that stimulates appetite in children is
A. cholecystokinin
B. glucagon-like peptide-1
C. peptide yy
D. vagal neuronal feedback
E. ghrelin

→ promote satiety.

36. All the following are childhood obesity-associated comorbidities later in life **EXCEPT**
A. hypertension
B. gallbladder disease
C. tibia vara
D. asthma
E. type 1 diabetes mellitus

→ type 2.

37. Genetic disorders associated with obesity can have all the following features **EXCEPT**
A. dysmorphic features
B. cognitive impairment
C. vision abnormalities
D. hearing abnormalities
E. tall stature

short stature.

38. The following are well recognized causes of secondary obesity **EXCEPT**
A. myelodyplasia
B. muscular dystrophy
C. anti-psychotic medications
D. achondroplasia
E. anti-migraine medications

39. The following physical features might be discovered during physical examination of an obese 10-year-old boy, and each reflect the associated morbidity **EXCEPT**

A. developmental delay suggests genetic disorder
B. day time sleepiness suggests sleep apnea
C. polyuria and nocturia suggest type 1 diabetes
D. hip pain suggests blount disease
E. abdominal pain suggests non alcoholic fatty liver disease

type 2.

40. The investigations to be done as part of initial evaluation of a newly identified obesity in a 12-year-old girl are the following **EXCEPT**

A. fasting plasma glucose
B. triglyceride level
C. lipoprotein level
D. liver function tests
E. renal function tests

41. The only Food and Drug Administration (FDA)-approved medication for obesity in children <16 yr old is

A. orlistat
B. phentermine
C. topiramate
D. amylin
E. lorcaserin

42. The **MOST** characteristic lesion of vitamin A deficiency is

A. xerophthalmia
B. corneal ulcers
C. Bitot spots
D. keratomalacia
E. keratoconus

In early vitamin A deficiency, the cornea keratinizes, becomes opaque, is susceptible to infection, and forms dry, scaly layers of cells (xerophthalmia).

43. All the following are helpful for diagnosis of marginal vitamin A deficiency **EXCEPT**

A. dark adaptation test
B. conjunctival impression cytology
C. relative dose response
D. plasma retinol level
E. diet history

used just if the deficiency is severe.
& liver stores are depleted.

44. Chronic hypervitaminosis A is associated with all the following features **EXCEPT**

A. seborrhea
B. alopecia
C. hepatosplenomegaly

D. bulging fontanel
E. echymosis

45. The following are characterstic features of acute hypervitaminosis A **EXCEPT**
A. nausea and vomiting
B. drowsiness
C. diplopia
D. cranial nerve palsies
E. seizures

46. The following conditions are risk factors for carotenemia **EXCEPT**
A. liver disease
B. food faddist
C. diabetes mellitus
D. hypothyroidism
E. malabsorption

47. The classic clinical triad of Wernicke encephalopathy of thiamine deficiency is
A. mental status changes, ocular signs, and ataxia
B. cardiac involvement, peripheral neuritis, and aphonia
C. depression, drowsiness, and poor mental concentration
D. increased intracranial pressure, meningismus, and coma
E. deterioration of school performance, seizures, and headache

48. Death from thiamine deficiency is usually due to
A. renal involvement
B. repeated infections
C. lactic acidosis
D. cardiac involvement
E. increased intracranial pressure

It can develop within 2-3 months of deficient intake. Poor mental status is an early feature. Hoarseness or aphonia caused by paralysis of the laryngeal nerve is a characteristic sign. Dry beriberi reflects neuronal involvement while wet beriberi reflects cardiac involvement.

49. Regarding thiamine deficiency
A. features develop within 2-3 weeks of deficient intake
B. poor mental concentration and depression are late features of the disease
C. hoarseness or aphonia is a characteristic sign
D. the term (dry) beriberi reflects the features of raised intracranial pressure
E. the term (wet) beriberi reflects the features of renal dysfunction

50. Thiamine-responsive megaloblastic anemia syndrome is a rare disorder, it is characterized by the following **EXCEPT**
A. diabetes mellitus
B. peripheral neuritis

This is an autosomal recessive disorder, characterized by Megaloblastic anemia, diabetes mellitus, and sensorineural hearing loss.

C. megaloblastic anemia
D. sensorineural hearing loss
E. autosomal recessive inheritance

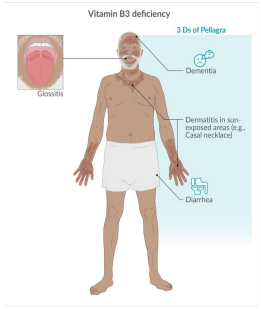
51. Brown-Vialetto-Van Laere syndrome (BVVLS), a neurologic disorder characterized by progressive neurologic deterioration, sensorineural hearing loss, and pontobulbar palsy usually responds to treatment with high doses of

A. niacin
B. biotin
C. riboflavin vit B2
D. pyridoxine
E. thiamin

52. The **MOST** convenient way to confirm a diagnosis of pellagra in children is

A. skin biopsy
B. urinary 2-pyridone
C. response to niacin treatment
D. urinary n1-methyl-nicotinamide
E. physical signs of glossitis and dermatitis

Rapid clinical response to niacin treatment is an important confirmatory test.



53. The **MOST** characteristic manifestation of pellagra is

A. dermatitis
B. dementia
C. diarrhea
D. anorexia
E. lassitude

54. The dietary reference intake of pyridoxine vit B6 for a healthy eight-month-old infant is

A. 0.1 mg/day
B. 0.3 mg/day
C. 0.5 mg/day
D. 1.0 mg/day
E. 3 mg/day

0-6 months: 0.1 mg/ day; 7-12 months: 0.3 mg/ day; 1-3 yr: 0.5 mg/day; 4-8 yr: 0.6 mg/day; 9-13 yr: 1.0 mg/day 14-18 yr: 1.2 - 1.3 mg/day.

55. All the following manifestations of pyridoxine deficiency are seen in children **EXCEPT**

A. seizures
B. cheilosis
C. listlessness
D. peripheral neuritis
E. seborrheic dermatitis

Peripheral neuritis is a feature of deficiency in adults but is not usually seen in children.

56. Pyridoxine is not affected in patients receiving
- A. isoniazid
- B. valproate
- C. phenytoin
- D. penicillamine
- E. corticosteroids

Others cause pyridoxine ↓

57. Folate is important during embryogenesis for the development of
- A. lungs
- B. genital organs
- C. gastrointestinal system
- D. central nervous system
- E. cardiovascular system

58. All the following can cause folate deficiency **EXCEPT**
- A. celiac disease
- B. sickle cell anemia
- C. 6-mercaptopurine therapy
- D. inflammatory bowel disease
- E. methylene tetrahydrofolate reductase deficiency

+ Methotrexate cause ↓ folate.

59. Clinical features of cerebral folate deficiency include the following **EXCEPT**
- A. lethargy
- B. microcephaly
- C. atatxia
- D. ballismus
- E. blindness

It manifests usually at 4-6 months of age. Other features are irritability (not lethargy), developmental delay, pyramidal tract signs, choreoathetosis and seizures.

60. One of the recognized non-hematological manifestations of folic acid deficiency in children is
- A. repeated respiratory abscesses
- B. recurrent abdominal pain
- C. recurrent seizures
- D. growth retardation
- E. teeth decay

+glossitis & listlessness (Not related to anemia).

61. All the following are features of hereditary folate malabsorption **EXCEPT**
- A. anal ulcers
- B. chronic diarrhea
- C. failure to thrive
- D. megaloblastic anemia
- E. opportunistic infections

62. The best indicator of chronic folate deficiency is
    A. serum folate level
    B. RBC folate level
    C. urinary folate level
    D. bone marrow aspiration
    E. CSF 5- methyltetrahydrofolate level

normal RBC folate level is 150-600 ng/ mL of packed cells.

63. Effective supplementation of folate for prevention of neural tube defect is
    A. started at least 1 mo before conception, and continued through the first 2-3 mo of pregnancy
    B. started at least 3 mo before conception, to be stopped after positive pregnancy test.
    C. started after positive pregnancy test and continued through the first 2-3 mo of pregnancy.
    D. started at least 1 mo before conception, to be stopped after positive pregnancy test.
    E. started at least 3 mo before conception, and continued through the first 2-3 mo of pregnancy

All women desirous of becoming pregnant should consume 400-800 µg folic acid daily; the dose is 4 mg/ day in those having delivered a child with neural tube defect.

64. The dietary reference intake (DRI) of folate for a healthy eight-month-old infant is
    A. 80 microgm/day
    B. 150 microgm/day
    C. 200 microgm/day
    D. 300 microgm/day
    E. 400 microgm/day

DRIs for folate are 65 µg for infants 0-6 months of age and 80µg between 6-12 months of age. For older children, the DRIs are 150 µg for ages 1-3 years; 200 µg for ages 4-8 years; 300 µg for ages 9-13 years; and 400 µg for ages 14-18 years.

65. Massive doses of folate given by injection have the potential to cause
    A. ototoxicity
    B. neurotoxicity
    C. nephrotoxicity
    D. severe abdominal pain
    E. respiratory difficulty

66. Important mechanism for maintaining vitamin B12 nutriture include the following **EXCEPT**
    A. direct absorption
    B. acidic pH in the ileum
    C. enterohepatic circulation
    D. binding with intrinsic factor
    E. intestinal bacterial synthesis

alkaline pH.

67. Vitamin B_{12} is important for all of the following **EXCEPT**

A. hematopoiesis
B. mental development
C. skeletal development
D. psychomotor development
E. central nervous system myelination

68. All the following are real risk factors for vitamin B_{12} deficiency **EXCEPT**
A. celiac disease
B. ileal resection
C. Imerslund-gräsbeck disease
D. helicobacter pylori infection
E. use of proton pump inhibitors

69. Common observations with vitamin B_{12} deficiency in children include all the following **EXCEPT**
A. hypotonia
B. peripheral neuritis
C. developmental regression
D. involuntary movements
E. hyperpigmentation of the knuckles

Irritability, developmental delay, developmental regression, and involuntary movements are the common neurologic symptoms in infants and children, whereas sensory deficits, paresthesias, and peripheral neuritis are seen in adults. Hyperpigmentation of the knuckles and palms is another common observation with B12 deficiency in children.

70. The dietary reference intake of cobalamin for a healthy eight-month-old infant is
A. 0.5 microgm/day
B. 1.0 microgm/day
C. 1.5 microgm/day
D. 2.0 microgm/day
E. 2.5 microgm/day

71. Radiographic features of scurvy are similar to that of
A. copper deficiency
B. magnesium deficiency
C. vitamin A excess
D. vitamin D excess
E. mercury exposure

72. The best indicator of the body stores of vitamin C is
A. plasma ascorbate concentration
B. leukocyte ascorbate concentration
C. urinary ascorbate level
D. urinary amino acid level
E. plasma amino acid level

73. The **MOST** specific but late radiographic feature of scurvy is
    A. ground-glass appearance of the shafts of the long bones
    B. pencil outlining of the epiphysis and diaphysis
    C. the white line of fränkelat the metaphysis
    D. Trümmerfeld zone at the metaphysis
    E. Pelkan spur at cortical ends

The more specific but late radiologic feature of scurvy is a zone of rarefaction underthewhitelineatthemetaphysis. iszoneofrarefaction (Trümmerfeldzone),a linear break in the bone that is proximal and parallel to the white line, represents area of debris of broken-down bone trabeculae and connective tissue.

74. Ingestion of large doses of vitamin C can cause
    A. musculoskeletal pain
    B. osmotic diarrhea → Abdo. pain
    C. severe headache
    D. respiratory symptoms
    E. hematemesis

75. The following are recognized causes of craniotabes **EXCEPT**
    A. osteogenesis imperfect
    B. rickets
    C. syphilis
    D. Sotos syndrome → cause large head.
    E. normal newborn

76. All the following are recognized causes of rickets **EXCEPT**
    A. Mccune-Albright syndrome ✓
    B. epidermal nevus syndrome ✓ enhance vitD loss of vit D.
    C. tuberus sclerosis
    D. neurofibromatosis ✓
    E. aluminum-containing antacids ⇒ ↓ phosphorus

77. Dominant features in X-linked hypophasphatemic rickets are
    A. head; craniotabes, frontal bossing, and caries
    B. back; scoliosis, lordosis, and kyphosis
    C. chest; rachitic rosary and Harrison groove
    D. extremities; coxa vara and windswept deformity
    E. general; listlessness and failure to thrive

78. Inorganic phosphorus in rickets is raised in
    A. vitamin D deficiency
    B. dietary calcium deficiency
    C. Fanconi syndrome
    D. chronic renal failure
    E. tumor-induced rickets

79. Parathyroid hormone level is reduced in
A. vitamin D dependent rickets
B. X- linked hypophosphatemic rickets
C. hypophosphatasia
D. dietary calcium deficiency
E. vitamin D deficiency

80. 25-hydroxy vitamin D level is reduced in
A. vitamin D deficiency
B. autosomal recessive hypophosphatemic rickets
C. autosomal dominant hypophosphatemic rickets
D. Fanconi syndrome
E. tumor-induced rickets

81. Urinary phosphorus is reduced in
A. chronic renal failure
B. autosomal dominant hypophosphatemic rickets
C. autosomal recessive hypophosphatemic rickets
D. dietary calcium deficiency
E. Fanconi syndrome

82. The following hereditary forms of rickets may help to diagnose an apparently healthy mother with the same disease
A. X- linked hypophosphatemic rickets
B. autosomal dominant hypophosphatemic rickets
C. autosomal recessive hypophosphatemic rickets
D. Fanconi syndrome
E. hereditary hypophosphatemic rickets with hypercalciuria

83. In evaluating the cause of rickets, which test is convenient if malabsorption is a consideration?
A. PT
B. PTT
C. stool pH
D. barium study
E. hydrogen breath test

Direct measurement of other fat-soluble vitamins (A, E, andK) or indirect assessment of deficiency (prothrombin time for vitamin K deficiency) is appropriate if malabsorption is a consideration.

84. The standard method for determining a patient's vitamin D status is
A. 25-hydroxylase level
B. 25-hydroxy vitamin D level
C. 1, 25-dihydroxy vitamin D level
D. D-binding protein

E. PTH level

It crosses the placenta significantly during the third trimester, which brings premature infants at risk. Hemolysis in premature infants typically started in the second month of life. Formulas containing poly unsaturated fatty acids may lead to exacerbation of deficiency as they make the red blood cells susceptible to oxidative stresses. In premature infants, deficiency causes hemolytic anemia and thrombocytosis, not thrombocytopenia.

85. Regarding vitamin E deficiency in premature infants, one of the following is **TRUE**
A. it does not cross the placenta
B. hemolysis develops in the first week of life
C. premature formula that contains poly unsaturated fatty acids may carry a protective effect against hemolysis
D. excessive iron supplementation for premature infants may augment the oxidative stress
E. causes thrombocytopenia

86. The following conditions/agents are incorporated in a similar presentation to vitamin K deficiency bleeding **EXCEPT**
A. liver disease
B. hereditary factor II deficiency
C. high dose salicylate
D. heparin
E. rodent poison

87. The first factor to be affected by deficiency of vitamin K is
A. Factor I
B. Factor II
C. Factor VII
D. Factor IX
E. Factor X

Factor VII has the shortest half life of the coagulation factors.

Delayed breast feeding is a risk factor to vitamin K bleeding tendency.

88. The baby that is least vulnerable to develop vitamin K bleeding tendency is
A. a three-day old neonate of a healthy mother that startedimmediate breastfeeding after birth
B. a three-year old child spent 21 days in intensive care unit receiving total parenteral nutrition
C. a nine-month old infant with prolonged history of diarrhea and multiple antibiotics therapy
D. a six-month old infant with cystic fibrosis missed to be diagnosed during early neonatal period
E. a six-hour neonate of an epileptic mother that received phenobarbital during pregnancy

89. One of the following matching is **TRUE** regarding the trace elements deficiencies and their consequences
A. zinc and hypogonadism
B. selenium and dental caries

Selenium deficiency causes cardiomyopathy and myopathy; Iron deficiency causes anemia and learning impairment; Manganese deficiency causes hypercholesterolemia and weight loss; Fluoride deficiency causes dental caries.

C. iron and hypothyroidism
D. fluoride and cardiomyopathy
E. manganese and decreased alertness

90. One of the following matching is **TRUE** regarding the trace element excess and its consequence

A. copper and congenital hypothyroidism
B. manganese and hyperuricemia
C. iron and abdominal pain
D. zinc and cholestatic jaundice
E. fluoride and nail changes

Copper excess causes acute (Nausea, vomiting and hepatic coma) and chronic toxicity (liver and brain injury); Manganese excess causes neurological manifestations and cholestatic jaundice; Zinc excess causes abdominal pain, diarrhea and vomiting; Fluoride excess causes dental fluorosis.

تمت الحلول وترتيب الملفات بواسطه
دكتوره رسل مهند
وايمان نبيل محمد

PART VI Nutrition
ANSWERS
HASANEIN GHALI

1.**(A).** The first 3 years.
2.**(B).** The AI is 60 gm/day for 0-6 months and 95 gm/day for 7-12 months.
3.**(C).** The AI is 31 gm/day for 0-6 months and 30 gm/day for 7-12 months.
4.**(B).** The AI is 9 gm/day for 0-6 months and 11 gm/day for 7-12 months.
5.**(E).** Alanine, aspartic acid, asparagine, glutamic acid, and serine are dispensable amino acids.
6.**(C).** Thrombocytopenia.
7.**(D).** Cow's milk is a poor source of bioavailable iron.
8.**(E).** Zinc is Essential for proper growth and development, and an important catalyst for about 100 specific enzymes.
9.**(C).** 600 IU/day.
10.**(E).** Diarrhea, otitis media, urinary tract infections, necrotizing enterocolitis, septicemia, infant botulism, celiac disease, childhood cancer, allergy, hospitalizations, and infant mortality all are conditions in which breastfeeding has been suggested to have a possible protective effect.
11.**(D).** Active pulmonary tuberculosis is a real contraindication to breastfeeding. Herpes simplex infection of the breast is another contraindication.
12.**(A).** Breast engorgement happens in the second stage of lactogenesis.
13.**(E).** Group A streptococcus, not group B.
14.**(A).**
15.**(A).** The level is similar in both vegetarian and non-vegetarian diets but the bioavailability is lower in vegetarians.
16.**(C).**
17.**(B).** Hemoglobin cutoffs to define anemia are 110 g/L for children 6-59 mo, 115 g/L for children 5-11 yr, and 120 g/L for children 12-14 yr. Cutoffs to define anemia for non-pregnant women are 120 g/L, 110 g/L for pregnant women, and 130 g/L for men.
18.**(E).** Weight-for-age is the most commonly used index of nutritional status, although a low value has limited clinical significance as it does not differentiate between wasting and stunting. Weight-for-age has the advantage of being somewhat easier to measure than indices that require height measurements.
19.**(A).** For children <5 yr, the global prevalence is estimated to be 33% for vitamin A deficiency, 29% for iodine deficiency, 17% for zinc deficiency, and 18% for iron-deficiency anemia. Prevalence of micronutrient deficiencies tends to be highest in Africa.
20.**(A).**

21.**(D).** Immune function is impaired, especially cell-mediated immunity. The usual responses to infection may be absent, even in severe illness, increasing the risk of undiagnosed infection.
22.**(C).** Edema and hair/skin changes are outward signs of cell damage.
23.**(B).** A controlled transition over 3 days is recommended to prevent the "refeeding syndrome."
24.**(A).** If no complications; oral Amoxicillin 25 mg/kg twice daily for 5 days. If there are any complications (shock, hypoglycemia, hypothermia, skin lesions, urinary tract or respiratory tract infections, or lethargy); Gentamicin 7.5 mg/kg IV or IM once daily for 7 days and Ampicillin 50 mg/kg IV or IM every 6 hours for 2 days then oral Amoxicillin 25-40 mg/kg every 8 hours for 5 days.
25.**(A).** The signals for entry to this phase are reduced or minimal edema and return of appetite.
26.**(C).** Measles vaccine is given to unimmunized children age >6 mo.
27.**(A).** Iron should be avoided in this phase.
28.**(E).** Treatment of infections is one of the therapeutic directives for stabilization phase.
29.**(D).** The aim of the rehabilitation phase is to restore wasted tissues (i.e., catch-up growth).
30.**(A).** The hallmark of refeeding syndrome is the development of severe hypophosphatemia after the cellular uptake of phosphate duringthe 1st wk of starting to refeed. Serum phosphate levels of ≤0.5 mmol/L can produce weakness, rhabdomyolysis, neutrophil dysfunction, cardio-respiratory failure, arrhythmias, seizures, altered level of consciousness, or sudden death.
31.**(D).** Thiamine deficiency causes encephalopathy, lactic acidosis, and death.
32.**(A).** Hypophosphatemia causes leucocyte dysfunction, hemolysis, and thrombocytopenia.
33.**(E).** Prenatal factors including high preconceptual weight, gestational weight gain, high birth weight, and maternal smoking are associated with increased risk for later obesity. Paradoxically, intrauterine growth restriction with early infant catch-up growth is associated with the development of central adiposity and adult-onset cardiovascular risk. Breastfeeding is only modestly protective for obesity.
34.**(C).** Body fat levels decrease for approximately 5.5 yr until the period called adiposity rebound, when body fat is typically at the lowest level. Adiposity then increases until early adulthood.
35.**(E).** Gastrointestinal hormones, including cholecystokinin, glucagon-like peptide-1, peptide YY, and vagal neuronal feedback promote satiety. Ghrelin stimulates appetite.
36.**(E).** Type 2 diabetes mellitus is a childhood obesity-associated comorbidity.
37.**(E).** Short stature is a common finding in children with obesity due to genetic disorders.
38.**(E).** Antimigraine medications do not influence obesity in children. All other distracters are true causes of secondary obesity.

39.**(C).** Type 2 diabetes mellitus is influenced in obesity, not type 1.
40.**(E).** Glucose, Insulin, Triglyceride level, LDL and HDL, total cholesterol, and liver function tests are the initial markers to be done during evaluation of an obese 12-year girl.
41.**(A).** Orlistat decreases absorption of fat, resulting in modest weight loss. Complications include flatulence, oily stools, and spotting.
42.**(A).** In early vitamin A deficiency, the cornea keratinizes, becomes opaque, is susceptible to infection, and forms dry, scaly layers of cells (xerophthalmia).
43.**(D).** The plasma retinol level is not an accurate indicator of vitamin A status unless the deficiency is severe and liver stores are depleted, in which case low plasma retinol is likely to be evident.
44.**(E).** Manifestations of vitamin C deficiency.
45.**(E).** Nausea, vomiting, and drowsiness; less-common symptoms include diplopia, papilledema, cranial nerve palsies, and other symptoms suggesting pseudotumor cerebri are the hall mark of acute Hypervitaminosis A. Seizures are unlikely.
46.**(E).** Malabsorption is not associated with any risk of carotenemia.
47.**(A).** This triad is rarely reported in infants and young children with severe deficiency secondary to malignancies or feeding of defective formula.
48.**(D).** Death from thiamine deficiency usually is secondary to cardiac involvement. The initial signs are cyanosis and dyspnea, but tachycardia, enlargement of the liver, loss of consciousness, and convulsions can develop rapidly. The heart, especially the right side is enlarged.
49.**(C).** It can develop within 2-3 months of deficient intake. Poor mental status is an early feature. Hoarseness or aphonia caused by paralysis of the laryngeal nerve is a characteristic sign. Dry beriberi reflects neuronal involvement while wet beriberi reflects cardiac involvement.
50.**(B).** This is an autosomal recessive disorder, characterized by Megaloblastic anemia, diabetes mellitus, and sensorineural hearing loss.
51.**(C).** Mutations in genes coding for riboflavin transporter proteins have been identified in children with BVVLS.
52.**(C).** Rapid clinical response to niacin treatment is an important confirmatory test.
53.**(A).** Dermatitis, the most characteristic manifestation of pellagra, can develop suddenly or insidiously and may be initiated by irritants, including intense sunlight.
54.**(B).** 0-6 months: 0.1 mg/ day; 7-12 months: 0.3 mg/ day; 1-3 yr: 0.5 mg/day; 4-8 yr: 0.6 mg/day; 9-13 yr: 1.0 mg/day 14-18 yr: 1.2 - 1.3 mg/day.
55.**(D).** Peripheral neuritis is a feature of deficiency in adults but is not usually seen in children.
56.**(B).** Other distracters cause pyridoxine deficiency.
57.**(D).**
58.**(C).** Methotrexate, not 6-mercaptopurine.
59.**(A).** It manifests usually at 4-6 months of age. Other features are irritability (not lethargy), developmental delay, pyramidal tract signs, choreoathetosis and seizures.

60.**(D).** Non hematologic manifestations include glossitis, listlessness, and growth retardation not related to anemia.
61.**(A).** Hereditary folate malabsorption manifests at 1-3 months of age with recurrent or chronic diarrhea, failure to thrive, oral ulcerations, neurologic deterioration, megaloblastic anemia, and opportunistic infections.
62.**(B).** The normal RBC folate level is 150-600 ng/ mL of packed cells.
63.**(A).** All women desirous of becoming pregnant should consume 400-800 µg folic acid daily; the dose is 4 mg/ day in those having delivered a child with neural tube defect.
64. **(A).** The DRIs for folate are 65 µg for infants 0-6 months of age and 80µg between 6-12 months of age. For older children, the DRIs are 150 µg for ages 1-3 years; 200 µg for ages 4-8 years; 300 µg for ages 9-13 years; and 400 µg for ages 14-18 years.
65.**(B).**
66.**(B).** Alkaline pH not acidic.
67.**(C).**
68.**(E).** Use of proton pump inhibitors and/or histamine 2 receptor antagonists may increase the risk of deficiency but is not a real cause of deficiency.
69.**(B).** Irritability, developmental delay, developmental regression, and involuntary movements are the common neurologic symptoms in infants and children, whereas sensory deficits, paresthesias, and peripheral neuritis are seen in adults. Hyperpigmentation of the knuckles and palms is another common observation with B12 deficiency in children.
70.**(A).** 0-6 months: 0.4 µg/day; 7-12 months: 0.5 µg/day; 1-3 yr: 0.9 µg/day 4-8 years: 1.2 µg/day 9-13 years: 1.8 µg/day 14-18 years: 2.4 µg/day.
71.**(A).**
72.**(B).**
73.**(D).** The more specific but late radiologic feature of scurvy is a zone of rarefaction under the white line at the metaphysis . is zone of rarefaction (Trümmerfeld zone), a linear break in the bone that is proximal and parallel to the white line, represents area of debris of broken-down bone trabeculae and connective tissue.
74.**(B).** Larger doses of vitamin C can cause gastrointestinal problems, such as abdominal pain and osmotic diarrhea.
75.**(D).** Soto's syndrome causes large head.
76.**(C).** Aluminum-containing antacids cause phosphorus deficiency. McCune-Albright syndrome, epidermal nevus syndrome, and Neurofibromatosis enhance renal losses.
77.**(D).**
78.**(D).** All other distracters are associated with decreased level of inorganic phosphorus.
79.**(C).**
80.**(A).**
81.**(A).** Reduced in chronic kidney disease and dietary phosphorus deficiency only while elevated in all other forms of rickets.

82.**(A).** Undiagnosed disease in the mother is not unusual in X-linked hypophosphatemia.
83.**(A)**. Direct measurement of other fat-soluble vitamins (A, E, andK) or indirect assessment of deficiency (prothrombin time for vitamin K deficiency) is appropriate if malabsorption is a consideration.
84.**(B).** The level of 1, 25-D is only low when there is severe vitamin D deficiency.
85.**(D).** It crosses the placenta significantly during the third trimester, which brings premature infants at risk. Hemolysis in premature infants typically started in the second month of life. Formulas containing poly unsaturated fatty acids may lead to exacerbation of deficiency as they make the red blood cells susceptible to oxidative stresses. In premature infants, deficiency causes hemolytic anemia and thrombocytosis, not thrombocytopenia.
86.**(D).** Anticoagulant warfarin and rodent poisons contain Coumarin derivatives that inhibit the action of vitamin K by preventing its recycling to an active form.
87.**(C).** Factor VII has the shortest half life of the coagulation factors.
88.**(A).** Delayed breast feeding is a risk factor to vitamin K bleeding tendency.
89.**(A).** Selenium deficiency causes cardiomyopathy and myopathy; Iron deficiency causes anemia and learning impairment; Manganese deficiency causes hypercholesterolemia and weight loss; Fluoride deficiency causes dental caries.
90.**(C).** Copper excess causes acute (Nausea, vomiting and hepatic coma) and chronic toxicity (liver and brain injury); Manganese excess causes neurological manifestations and cholestatic jaundice; Zinc excess causes abdominal pain, diarrhea and vomiting; Fluoride excess causes dental fluorosis.